

What is Claimed Is:

1. A method in a multi-homed endpoint having multiple interfaces with respective Internet Protocol (IP) source addresses, the method including:

first identifying source-destination address pairs available between the IP source addresses of the multi-homed endpoint and IP destination addresses available for reaching a multi-homed peer via an IP network;

initiating, for each source-destination address pair, a metric for identifying successful data transfer between the corresponding IP source address of the multi-homed endpoint and the corresponding IP destination address of the multi-homed peer; and

second identifying one of the source-destination address pairs having the corresponding metric indicating a highest successful data transfer relative to the other source-destination pairs; and

selecting the interface having the IP source address associated with the identified one source-destination address pair, for transport of a message to the multi-homed peer.

2. The method of claim 1, wherein the initiating step includes, for each source-destination address pair:

incrementing a corresponding assigned counter in response to a determined absence of an acknowledgement within a prescribed time interval of sending a data frame via the corresponding source-destination address pair; and

decrementing the corresponding assigned counter, until reaching a zero value, for each acknowledgement detected within the corresponding prescribed time interval.

3. The method of claim 2, wherein the second identifying step includes identifying the one source-destination address pair having the corresponding assigned counter with a lowest counter value relative to the other assigned counters.

4. The method of claim 3, wherein the second identifying step further includes selecting, between the one source-destination address pair and a second source-destination address pair each

having the lowest counter value, the one source-destination pair based on having a lower corresponding determined round trip time interval.

5. The method of claim 3, wherein the initiating step includes periodically sending heartbeat data frames on each of unselected ones of the source-destination address pairs, other than the identified one source-destination address pair, having a corresponding nonzero value.

6. The method of claim 5, wherein the initiating step further includes sending the heartbeat data frames, during a detected idle interval, on a selected one of the source-destination address pairs according to a round robin sequence.

7. The method of claim 3, wherein the selecting step includes repeating the selecting step for each message to be output by the multi-homed endpoint to the multi-homed peer.

8. The method of claim 1, wherein the selecting step includes repeating the selecting step for each message to be output by the multi-homed endpoint to the multi-homed peer.

9. A multi-homed endpoint comprising:

- a plurality of interfaces, having respective Internet Protocol (IP) source addresses, for connection with an IP network;

- a first executable resource configured for identifying source-destination address pairs available between the IP source addresses and IP destination addresses available for reaching a multi-homed peer via the IP network, the first executable resource configured for initiating, for each source-destination address pair, a metric for identifying successful data transfer between the corresponding IP source address of the multi-homed endpoint and the corresponding IP destination address of the multi-homed peer; and

- a selection resource configured for identifying one of the source-destination address pairs having the corresponding metric indicating a highest successful data transfer relative to the other source-destination pairs, the selection resource configured for selecting the interface having the IP

source address associated with the identified one source-destination address pair, for transport of a message to the multi-homed peer.

10. The endpoint of claim 9, wherein the first resource is configured for initiating a counter for each source-destination address pair, the first resource configured for:

incrementing the counter for a corresponding source-destination address pair in response to a determined absence of an acknowledgement within a prescribed time interval of sending a data frame via the corresponding source-destination address pair; and

decrementing the counter for a corresponding source-destination address pair, until reaching a zero value, in response to each acknowledgement detected within the corresponding prescribed time interval.

11. The endpoint of claim 10, wherein the selection resource is configured for selecting the one source-destination address pair having the corresponding counter with a lowest counter value relative to the other counters.

12. The endpoint of claim 11, wherein the selection resource is configured for selecting, between the one source-destination address pair and a second source-destination address pair each having the lowest counter value, the one source-destination pair based on having a lower corresponding determined round trip time interval.

13. The endpoint of claim 11, wherein the first executable resource is configured for periodically sending heartbeat data frames on each of unselected ones of the source-destination address pairs, other than the identified one source-destination address pair, having a corresponding nonzero value.

14. The endpoint of claim 13, wherein the first executable resource is further configured for sending second heartbeat data frames, during a detected idle interval, on a selected one of the source-destination address pairs according to a round robin sequence.

15. The endpoint of claim 11, wherein the selecting resource is configured for selecting a new interface, based on identifying the corresponding source-destination address pair having the corresponding metric indicating the highest successful data transfer relative to the other source-destination pairs, for each message to be output by the multi-homed endpoint to the multi-homed peer.

16. The method of claim 9, wherein the selecting resource is configured for selecting a new interface, based on identifying the corresponding source-destination address pair having the corresponding metric indicating the highest successful data transfer relative to the other source-destination pairs, for each message to be output by the multi-homed endpoint to the multi-homed peer..

17. A computer readable medium having stored thereon sequences of instructions for sending a message by a multi-homed endpoint having multiple interfaces with respective Internet Protocol (IP) source addresses, the sequences of instructions including instructions for:

5 first identifying source-destination address pairs available between the IP source addresses of the multi-homed endpoint and IP destination addresses available for reaching a multi-homed peer via an IP network;

initiating, for each source-destination address pair, a metric for identifying successful data transfer between the corresponding IP source address of the multi-homed endpoint and the corresponding IP destination address of the multi-homed peer; and

10 second identifying one of the source-destination address pairs having the corresponding metric indicating a highest successful data transfer relative to the other source-destination pairs; and

selecting the interface having the IP source address associated with the identified one source-destination address pair, for transport of a message to the multi-homed peer.

18. The medium of claim 17, wherein the initiating step includes, for each source-destination address pair:

incrementing a corresponding assigned counter in response to a determined absence of an acknowledgement within a prescribed time interval of sending a data frame via the corresponding source-destination address pair; and

decrementing the corresponding assigned counter, until reaching a zero value, for each acknowledgement detected within the corresponding prescribed time interval.

19. The medium of claim 18, wherein the second identifying step includes identifying the one source-destination address pair having the corresponding assigned counter with a lowest counter value relative to the other assigned counters.

20. The medium of claim 19, wherein the second identifying step further includes selecting, between the one source-destination address pair and a second source-destination address pair each having the lowest counter value, the one source-destination pair based on having a lower corresponding determined round trip time interval.

21. The medium of claim 19, wherein the initiating step includes periodically sending heartbeat data frames on each of unselected ones of the source-destination address pairs, other than the identified one source-destination address pair, having a corresponding nonzero value.

22. The medium of claim 21, wherein the initiating step further includes sending the heartbeat data frames, during a detected idle interval, on a selected one of the source-destination address pairs according to a round robin sequence.

23. The medium of claim 19, wherein the selecting step includes repeating the selecting step for each message to be output by the multi-homed endpoint to the multi-homed peer.

24. The medium of claim 17, wherein the selecting step includes repeating the selecting step for each message to be output by the multi-homed endpoint to the multi-homed peer.

25. A multi-homed endpoint comprising:

multiple interfaces with respective Internet Protocol (IP) source addresses;

first means for identifying source-destination address pairs available between the IP source addresses of the multi-homed endpoint and IP destination addresses available for reaching a multi-homed peer via an IP network;

means for initiating, for each source-destination address pair, a metric for identifying successful data transfer between the corresponding IP source address of the multi-homed endpoint and the corresponding IP destination address of the multi-homed peer; and

second means for identifying one of the source-destination address pairs having the corresponding metric indicating a highest successful data transfer relative to the other source-destination pairs; and

means for selecting the interface having the IP source address associated with the identified one source-destination address pair, for transport of a message to the multi-homed peer.

26. The endpoint of claim 25, wherein the initiating means is configured, for each source-destination address pair, for:

incrementing a corresponding assigned counter in response to a determined absence of an acknowledgement within a prescribed time interval of sending a data frame via the corresponding source-destination address pair; and

decrementing the corresponding assigned counter, until reaching a zero value, for each acknowledgement detected within the corresponding prescribed time interval.

27. The endpoint of claim 26, wherein the second means for identifying is configured for identifying the one source-destination address pair having the corresponding assigned counter with a lowest counter value relative to the other assigned counters.

28. The endpoint of claim 27, wherein the second means for identifying further is configured for selecting, between the one source-destination address pair and a second source-destination

address pair each having the lowest counter value, the one source-destination pair based on having a lower corresponding determined round trip time interval.

29. The endpoint of claim 27, wherein the initiating means is configured for periodically sending heartbeat data frames on each of unselected ones of the source-destination address pairs, other than the identified one source-destination address pair, having a corresponding nonzero value.

30. The endpoint of claim 29, wherein the initiating means is configured for sending second heartbeat data frames, during a detected idle interval, on a selected one of the source-destination address pairs according to a round robin sequence.

31. The endpoint of claim 27, wherein the selecting means is configured for repeating the selection of a source IP address for each message to be output by the multi-homed endpoint to the multi-homed peer.

32. The endpoint of claim 25, wherein the selecting means is configured for repeating the selection of a source IP address for each message to be output by the multi-homed endpoint to the multi-homed peer.